Message

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Subject: Daily Media Clips: Morning Edition 5/3/2021

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Air:

- The Daily Reporter: Report: Wisconsin air quality better, except for 6 counties

Climate Pollutants:

- Washington Post: EPA will propose phasing down hydrocarbons, a set of climate super-pollutants, by 2036
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- Wall Street Journal: EPA Proposes Rules to Curb Coolant Emissions From Air Conditioners and Refrigerators
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Air:

The Daily Reporter: Report: Wisconsin air quality better, except for 6 counties: May 3, 2021: by Danielle Kaeding.

https://dailyreporter.com/2021/05/03/report-wisconsin-air-quality-better-except-for-6-counties/

Most of Wisconsin has breathed cleaner air over the last several years, according to the American Lung Association. But as part of its annual national report card on the state of air quality, the group gave failing grades to six counties along Lake Michigan over smog pollution.

In general, Wisconsin is seeing fewer days with high ozone levels. But, the report gave a failing grade to Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine and Sheboygan counties for the highest number of days with poor air quality because of smog. That's down from eight counties in the group's 2018 air quality report. The areas that aren't experiencing any high ozone pollution include Ashland, Forest, La Crosse, Marathon, Taylor and Vilas counties.

Smog, or ozone pollution, typically occurs when air pollutants like nitrogen oxides and volatile organic compounds interact with heat and sunlight during the summer. Those pollutants generally stem from industry, power-plant and vehicle emissions, Wisconsin Public Radio reported.

The scores are based on a rolling average of the number of days when ozone levels exceeded certain targets from 2017 to 2019. It did not include air quality readings during the pandemic.

"The number of days have gone down, but there's still a lot of people that are affected by ozone, especially the elderly, the young," said Angela Tin, national senior director of the American Lung Association. "And, also now because of the pandemic, we need some healthy lungs to fight against the air pollution, and we need healthy lungs to fight against the pandemic."

Ozone pollution can create short-term and long-term respiratory problems. Tin said the pollution can worsen asthma and increase the risk of chronic-health issues like emphysema, chronic obstructive pulmonary disease and lung cancer.

The report found cities like Sheboygan and Milwaukee were among the top 25 most polluted cities for smog nationwide. The cleanest cities in Wisconsin for ozone pollution were Wausau, Stevens Point and Wisconsin Rapids.

The number of bad-air days dropped in the nation's 25 most ozone-polluted cities, noting the years represented were somewhat cooler than those covered in its previous report. But, it noted that 2017, 2018 and 2019 were still among the six hottest years on record. As climate change drives temperatures higher, warmer weather is making it more likely for ozone pollution to form.

The counties with the greatest number of days on average that had high ozone concentrations included Kenosha County at 9.2 days, Sheboygan County at nine days and Racine County at eight days.

Southeastern Wisconsin has struggled over time to meet standards for ground-level ozone pollution. In 2015, the Obama administration created a stricter standard for ozone pollution at 70 parts per billion — a slight decrease from an earlier standard of 75 parts per billion that was implemented following a review launched in 2008.

The Wisconsin Department of Natural Resources said the grades given by the American Lung Association are not based on compliance with those federal National Ambient Air Quality Standards, according to public information specialist Craig Czarnecki. While the report uses official monitoring data, the group's methodology differs from what the U.S. Environmental Protection Agency measures to determine whether health objectives are being met. The EPA considers the impact of exposure and other factors in determining whether those areas meet federal standards.

Czarnecki said high concentrations can occur for short periods of time, but they're typically not harmful to human health.

"Some Wisconsin counties that are in attainment of the (National Ambient Air Quality Standards) — and thereby meeting all federal air quality standards — are consistently given low or failing grades," Czarnecki said in an email.

Milwaukee County, for example, received a failing grade, but Czarnecki said the county is currently meeting the 2015 standard for ozone. As for the five other counties that received a failing grade, he said only parts of those counties are not meeting the federal standard.

"It's actually really only a very small, few miles of a band along those lakeshores that are seeing those higher ozone concentrations," said Czarnecki. "That wouldn't be those entire counties."

A DNR report released last fall found the state's air quality improved along the Lake Michigan shoreline with ozone pollution dropping 25 percent on average since 2001. The report also found 95 percent of Wisconsinites live in an area that meets federal air standards.

In 2018, the EPA narrowed a list of areas that need to reduce smog levels under the standard, which included lakeshore areas of Kenosha, Door, Manitowoc, Sheboygan, northern Milwaukee and Ozaukee counties.

The decision excluded Waukesha, Washington and Racine counties, which had originally been included as part of areas that weren't meeting the tougher standards.

Business groups and the DNR have argued that the region is being affected by smog that's coming from Illinois and Indiana. Clean Wisconsin filed a lawsuit against the EPA in 2018, saying the pared down list failed to protect people from high ozone levels.

"As long as Wisconsin sources are contributing to emissions that are making people sick, those sources should be responsible for reducing air pollution, too," said Katie Nekola, general counsel for Clean Wisconsin.

Last July, a federal appeals court ruled the EPA must provide further explanation and review for its designations. Nekola said she's confident that President Joe Biden's administration will "do what's necessary to protect people's health."

Tin, with the American Lung Association, hopes people use public transport, work from home or purchase electric vehicles to cut back the amount of ozone pollution.

The association also measured particle pollution, commonly referred to as soot. Milwaukee, Kenosha and Ozaukee counties all earned an "A" for lower levels of that pollutant. Tin said particulate matter raises concerns because it can become embedded in the lungs and absorbed into the bloodstream.

Since the early 2000s, fine particulate matter concentrations have decreased more than 35 percent statewide, according to the DNR.

Climate Pollutants:

Washington Post: EPA will propose phasing down hydrocarbons, a set of climate super-pollutants, by 2036: May 3, 2021: by Juliet Eilperin and Dino Grandoni.

https://www.washingtonpost.com/climate-environment/2021/05/03/epa-climate-hfcs/

The Environmental Protection Agency will propose on Monday a rule aiming to sharply cut the use and production of a class of powerful greenhouse gases used widely in refrigeration and air conditioning. The proposal marks the first time President Biden's administration has used the power of the federal government to mandate a cut in climate pollution.

Unlike many of the administration's other climate initiatives, there's broad bipartisan support for curbing hydrofluorocarbons, pollutants thousands of times more potent than carbon dioxide at warming the planet. Congress agreed at the end of last year to slash the super-pollutants by 85 percent over the next 15 years as part of a broader omnibus bill.

Altogether, a global phase down of hydrofluorocarbons, also known as HFCs, is projected to avert up to 0.5 degree Celsius (0.9 degrees Fahrenheit) of warming by the end of the century.

Widely used in refrigeration as well as residential and commercial air conditioning and heat pumps, HFCs were developed as a substitute for chemicals that depleted the Earth's protective ozone layer. But their heat-trapping properties have helped further fuel rising temperatures.

The new rule lays out a system for how the agency would provide allowances for the production and use of HFCs for 2022 and 2023, with those amounts shrinking in the years to come. Last month, EPA finalized a list of new refrigerant options that could be used a substitutes.

The EPA is also proposing to establish a new enforcement system that targets one of the most powerful chemicals in this class — HFC-23 — which often arises as a byproduct of making Teflon and other plastics. The proposal would institute tracking measures and require that suppliers put the chemicals in reusable cylinders that would make it harder to traffic illegally in HFCs.

The EPA confirmed that the rule will be proposed later Monday.

Avipsa Mahapatra, climate lead for the nonprofit Environmental Investigation Agency, said in an interview that the proposed regulation anticipates many of the problems that might arise from cutting HFC use and production so sharply.

"It's very forward looking," said Mahapatra, whose group has conducted several undercover investigations focused on climate-damaging refrigerants. She added that the group is "thrilled" the new administration has acted so swiftly to target these pollutants. "They have not compromised on ambition in the interest of speed."

The moves mark a sharp shift from the Trump administration, which rolled back Obama-era policies aimed at fulfilling America's commitment to reduce HFCs under a 2016 international agreement, called the Kigali Amendment. Donald Trump never submitted the treaty for Senate ratification, and his deputies reversed a rule requiring companies to detect and repair leaks from any appliance or piece of equipment using more than 50 pounds of HFCs.

Biden officials are reviewing whether to revive the rule, and the president signed an executive order in January instructing Secretary of State Antony Blinken to submit the Kigali Amendment to the Senate for a vote.

In the meantime these heat-trapping gases' emissions are rising by 4 million metric tons between 2018 and 2019 in the U.S., according to the EPA.

Tracking Biden's environmental policies

The EPA's new rule is born out of a rare bipartisan deal in Congress in which Senate Republicans bucked Trump to join Democrats passing a law to tame the potent greenhouse gases. That compromise came after both business and green groups pushed Trump to support the Kigali Amendment, which the EPA rule closely mirrors.

David Doniger, senior strategic director of the Natural Resources Defense Council's climate and clean energy program, called the new EPA rule a "strong, fast start" in implementing "the most important climate law passed in a long time."

The agency estimates its proposed rule would yield $284 billion in benefits from 2022 through 2050, while saving industry money in compliance costs. By the time it is fully implemented, the agency projects, it will prevent the equivalent of 187 million metric tons of carbon dioxide from entering the atmosphere, which roughly equal to the annual greenhouse gas emissions from one out of every seven vehicles registered in the United States.

U.S. manufacturers have developed a set of more climate-friendly refrigerants, and several major chemical companies lobbied for cuts in HFC use. A number of large supermarket chains — including Walmart and Whole Foods, which is owned Amazon — have pledged to phase out the chemicals in their operations. Amazon founder Jeff Bezos owns the Washington Post.

However, there is still widespread leakage of these climate super-pollutants in the commercial food sector. The industry estimates that every year supermarkets lose an average of 25 percent of their refrigerant charge. And in a recent EIA undercover investigation of grocery stores in D.C., Maryland and Virginia found that more than half the surveyed stores were emitting HFCs.

Commercial refrigeration, which includes grocery stores as well as restaurants and food processing, accounts for about 28 percent of all U.S. emissions of HFCs. Air conditioning for commercial buildings and homes represents between 40 and 60 percent of emissions, according to federal data.

The EPA proposal is just a first step in tackling the super-pollutants under the new law. Both the makers of cooling appliances and environmental organizations are petitioning the EPA to mandate less-polluting alternatives for many smaller air conditioning products, as well as ensure the federal government's HFC regulations are consistent with those from California, which has acted on its own to curb the greenhouse gases.

Kristen Taddonio, senior climate and energy advisor for the Institute for Governance & Sustainable Development, praised the EPA's move in an email but suggested it could go further. On Monday the group will file a petition with the agency to speed up approvals for low-carbon refrigerants and withdraw the Energy Star label from any appliances using climate super-pollutants.

"If EPA gets refrigerants right," she said, "we can avoid accidentally cooking our planet with our cooling appliances."

New York Times: E.P.A. to Announce Phase-Down of Powerful Greenhouse Gases: May 3, 2021: by Lisa Friedman.

https://www.nytimes.com/2021/05/03/climate/EPA-HFCs-hydrofluorocarbons.html

WASHINGTON — The Environmental Protection Agency on Monday will take its first significant step to curb climate change, an agency spokesman confirmed, moving to phase down chemicals used in refrigeration and air-conditioning that are thousands of times more potent than carbon dioxide at warming the planet.

The proposed regulation aims to reduce the production and importation of hydrofluorocarbons, or HFCs, in the United States by 85 percent over the next 15 years. It's a goal shared by environmental groups and the business community, which jointly championed bipartisan legislation passed by Congress in December to tackle the pollutant.

The speed with which the E.P.A. is proposing the regulation underscores the level of attention the Biden administration is giving to climate change, said Francis Dietz, vice president for public affairs at the Air-Conditioning, Heating and Refrigeration Institute, a trade group.

"They're really moving swiftly," he said. "It says they're very serious about this."

In communicating the gains it believes will be realized by tackling climate change, the E.P.A. estimated that the HFC rule will result in $283.9 billion in health and environmental benefits by the middle of the century.

The effort is part of President Biden's ambitious strategy to cut the country's greenhouse gas emissions roughly in half by 2030. It also puts the United States in line with an international goal to reduce HFCs, which the Biden administration has said it will honor as part of its effort to revive American leadership in tackling climate change.

Like methane, HFCs have short-term warming effects far more powerful than carbon dioxide, but they don't stay in the atmosphere as long. Scientists have estimated that reducing these types of greenhouse gases can have a palpable impact, slowing the pace of global warming by 0.6 degrees Celsius by midcentury.

"This is incredibly significant," said Kristen N. Taddonio, a senior climate and energy adviser for the Institute for Governance & Sustainable Development, an environmental nonprofit group. "By taking fast action on these short-lived climate pollutants, of which HFCs are the most potent, we can buy ourselves some time and actually help avoid climate tipping points."

As part of a sweeping coronavirus relief bill, Congress last year approved language directing the E.P.A. to curb HFCs. Senator Chuck Schumer of New York, who at the time was the Democratic minority leader, called it "the single biggest victory in the fight against climate change to pass this body in a decade."

The E.P.A. estimates that from 2022 to 2050, the rule will eliminate the equivalent of 4.7 billion metric tons of carbon dioxide — or about three years' worth of emissions from America's power sector.

The agency said it had performed an "environmental justice analysis" that found cuts to planet-warming emissions "would benefit populations that may be especially vulnerable to damages associated with climate change, such as the very young, elderly, poor, disabled and Indigenous populations."

Echoing an economic theme that Mr. Biden has repeatedly promoted when discussing his climate plans, the E.P.A. said that American manufacturers were at the forefront of developing HFC alternatives and that the new regulations would position these companies to succeed at home and abroad.

Mr. Dietz said he hoped that federal regulation meant companies would not face a patchwork of HFC prohibitions that are now being formulated in different states.

"This is a big signal to the states that the administration takes this seriously and the federal government takes this seriously," he said.

In the last days of the Obama administration, 197 nations including the United States signed an accord in Kigali, Rwanda, agreeing to phase out HFCs. President Donald J. Trump never brought the agreement to the Senate for ratification. Mr. Biden, who has rejoined the United States to the Paris Agreement on climate change, has pledged to send the Kigali amendment to the Senate for approval.

Wall Street Journal: EPA Proposes Rules to Curb Coolant Emissions From Air Conditioners and Refrigerators: May 3, 2021: by Timothy Puko.

https://www.wsj.com/articles/epa-proposes-rules-to-curb-coolant-emissions-from-air-conditioners-and-refrigerators-11620046000

WASHINGTON—The U.S. Environmental Protection Agency is proposing rules to reduce the use of coolants from air conditioners and refrigerators that are potent greenhouse gases, fulfilling new mandates from Congress with regulations favored by large portions of U.S. industry, according to the agency.

The proposal would create a process for reducing the use of hydrofluorocarbons in cooling appliances, the first step toward meeting new mandates to cut their supply by 85% over 15 years, the EPA said. Congress passed that mandate in December in provisions included in a $2 trillion spending and Covid-19 aid package.

"EPA is taking a major action to help keep global temperature rise in check," agency Administrator Michael Regan said in a statement, adding that the action will spur "manufacturing of new climate-safe products."

The effort has bipartisan support and backing from the industry. The Air-Conditioning, Heating and Refrigeration Institute, a trade group for equipment manufacturers, has said U.S. companies have spent billions of dollars developing alternative chemicals to sell globally, which would get a boost if the U.S. joins international efforts to eliminate hydrofluorocarbons, known as HFCs.

Karen Meyers, a vice president at Atlanta-based Rheem Manufacturing Co., which makes air-conditioning equipment, said in a statement provided by the EPA that the new rule "is key to achieving an orderly HFC phasedown in the United States, creating a uniform federal approach to this effort."

New EPA estimates in the proposal say it would produce a net gain for the economy of $284 billion from 2022 through 2050. Those gains come from reduced compliance costs for the industry and by reducing greenhouse-gas emissions into the atmosphere.

The rules would cut the equivalent of 4.7 billion metric tons of carbon dioxide emissions from 2022 through 2050, or almost three years of U.S. power sector emissions at 2019 levels.

HFCs are synthetic, widely used coolants in refrigerators and air conditioners. They have long accounted for less than 2% of U.S. greenhouse-gas emissions. But they can also linger in the atmosphere for thousands of years, and their heat-trapping capacity can be hundreds or thousands of times that of carbon dioxide.

U.S. companies including Honeywell International Inc., the DuPont Co. spinoff Chemours Co. and Johnson Controls Inc. are among the many that have surged into the potential new market. Some retailers like Walmart Inc. have also been supportive of federal regulation, saying it would help them meet pledges to cut emissions by helping clean up their refrigerated sections.

The Association of Home Appliance Manufacturers had previously warned that putting these rules in place too quickly could rapidly raise costs. Consumer prices for appliances might eventually rise only as much as about 2%, as has been the case in previous coolant phaseouts, the industry group Alliance for Responsible Atmospheric Policy has said.

But it also took years longer than once anticipated for the EPA to start working on such rules. As it stands now, the agency is setting only the outlines of the program and how to enforce it.

It plans by Oct. 1 to set limits going into effect next year and will decide in future proposals how to keep lowering that limit, according to EPA officials. That puts it more in line with industry's previous timeline requests. In 2016 the agency had initially set deadlines to phase out HFCs in new appliances such as refrigerators by 2021, while industry had requested that wait until 2024.

The new proposal also starts the U.S. on track to meet an international agreement to phase out hydrofluorocarbons. At a meeting in Rwanda in 2016, the U.S., China and India among nearly 200 countries agreed to aim for an 80% reduction in their use by 2045.

Former President Donald Trump signed off on what is known as the American Innovation and Manufacturing Act of 2020 to implement that agreement.

The law's phasedown is consistent with that deal, the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer. The Wall Street Journal has previously reported that President Biden intends to seek its Senate ratification, even while the EPA moves forward based on the new law.

The EPA's proposal also outlines how EPA will give some exemptions allowed under the law for things such as mission-critical military applications, the agency said. The agency plans to finalize this rule later this year after 45 days of collecting public comments and holding a public hearing.

Write to Timothy Puko at tim.puko@wsj.com

The Hill: EPA proposes major rule to reduce certain greenhouse gases: May 3, 2021: by Rachel Frazin and Olafimihan Oshin.

https://thehill.com/policy/energy-environment/overnights/551432-epa-to-propose-rule-slashing-hydrofluorocarbons-use

The Environmental Protection Agency (EPA) is taking a major step Monday to battle climate change with the formal proposal of a rule phasing down the use of planet-warming gases called hydrofluorocarbons (HFCs), which are used as refrigerants, the agency announced Monday.

The reduction will decrease HFC production and use in the U.S. by 85 percent over the next 15 years. The rule is being issued under a law passed last year by Congress.

The EPA said that phasing down the use of the gases globally would avoid up to 0.5 °C of global warming by 2100.

The agency said it will issue an allowance for how much of the gases can be used for 2022 by Oct. 1 and how much can be used for 2023 by that date next year.

The agency said that it will create a framework within the legal timeline for the phaseout, and will revisit allocating HFCs for 2024 and beyond.

The rule came after a bipartisan effort from Congress to pass a law to reduce the use of HFCs.

The Trump administration rolled back Obama administration policies aiming to fulfill the country's commitment to reduce HFCs in an international agreement in 2016 called the Kigali Amendment.

Reuters: U.S. EPA proposes rule to phase down HFCs by 85% over 15 years: May 3, 2021: by Valerie Volcovici.

https://www.reuters.com/business/energy/us-epa-proposes-rule-phase-down-hfcs-by-85-over-next-15-years-2021-05-03/

The Environmental Protection Agency on Monday proposed a rule to slash the use of a potent greenhouse gas commonly used in refrigerators and air conditioners by 85% over the next 15 years.

The move to curb hydrofluorocarbons (HFCs) would avoid the equivalent of 900 million tonnes of CO2 emissions over that period.

The proposal arises from a law passed by Congress in December 2020 that was tucked into an omnibus spending bill which directed the EPA to issue regulations phasing down HFC production and set up an import schedule over the next 15 years.

The proposed rule entails "allocations" for each HFC producer and importer that ensure the United States stays on course to meet the phase-out targets.

"By phasing down HFCs, which can be hundreds to thousands of times more powerful than carbon dioxide at warming the planet, EPA is taking a major action to help keep global temperature rise in check," said EPA Administrator Michael Regan.

The EPA said the move would be an "important step" toward achieving the Biden administration's broader goal to reduce national greenhouse gas emissions by 50-52% below 2005 levels by 2030, which it announced at its Earth Day summit last month.

The proposal won the support of the Air-Conditioning, Heating, and Refrigeration Institute trade group.

"EPA's action will help create the certainty necessary for U.S. companies to maintain their natural technological advantage in the global HFC marketplace," said AHRI President and CEO Stephen Yurek.

A recent analysis by the Rhodium Group said achieving the 15-year target would bring about an equivalent cut of around 900 million tons of carbon dioxide - the yearly emissions of nearly 195 million cars.

Environmental Justice:

WKYC: Dennis Kucinich calls Cleveland Mayor Frank Jackson's plan for asphalt plant along Opportunity Corridor 'environmental health disaster': May 3, 2021: by Mark Naymick.

https://www.wkyc.com/article/news/local/cleveland/dennis-kucinich-cleveland-mayor-frank-jackson-opportunity-corridor/95-49180d77-7768-42a1-a034-ba0a35913357

Former six-term congressman Dennis Kucinich – who is contemplating a bid for City Hall this year – blasted Mayor Frank Jackson's plans to build a construction school along Opportunity Corridor that includes a concrete and asphalt plant.

It is "an environmental and health disaster for predominantly Black Cleveland neighborhoods and the adjacent suburbs of Cleveland Heights, Shaker Heights, Beachwood and beyond," Kucinich said in a statement. "There is a particular cruelty in asking people of color in areas of high unemployment to take a trade-off in health for alleged economic opportunity."

Kucinich said he sent a letter to the EPA asking it to review the city's proposal thus far.

In his public statement, Kucinich charged the city is ignoring readily available information about the dangers of such plants on residents.

"The slightest research by Cleveland City Hall leaders would have revealed that even with controls, asphalt plant emissions, in an urban area will bring increased levels of cancer-causing formaldehyde, nickel, cadmium and benzene, within a two-mile radius, with pollution slowly dissipating over the next few miles depending on several factors, such as the height of the asphalt plant stack, the volume of asphalt produced, the wind direction and velocity," he said.

3News asked City Hall for a comment on Kucinich's remarks and its plans for the plant. This post will be updated if the city's responds.

ScienceBlog: People Of Color Hardest Hit By Air Pollution From Nearly All Sources: May 3, 2021: Christopher Tessum.

https://scienceblog.com/522558/people-of-color-hardest-hit-by-air-pollution-from-nearly-all-sources/

Various studies show that people of color are disproportionately exposed to air pollution in the United States. However, it was unclear whether this unequal exposure is due mainly to a few types of emission sources or whether the causes are more systemic. A new study that models peoples' exposure to air pollution – resolved by race-ethnicity and income level – shows that exposure disparities among people of color and white people are driven by nearly all, rather than only a few, emission source types.

The study led by University of Illinois Urbana Champaign civil and environmental engineering professor Christopher Tessum is published in the journal Science Advances.

"Community organizations have been experiencing and advocating against environmental injustice for decades," Tessum said. "Our study contributes to an already extensive body of evidence with the new finding that there is no single air pollution source, or a small number of sources, that account for this disparity. Instead, the disparity is caused by almost all of the sources."

The team used an air quality model to analyze Environmental Protection Agency data for more than 5,000 emission source types, including industry, agriculture, coal electric utilities, light- and heavy-duty gasoline vehicles, diesel vehicles, off-road vehicles and equipment, construction, residential sources, road dust and other miscellaneous small emissions sources. Each source type studied contributes to fine particle air pollution, defined as particles being 2.5 micrometers or less in diameter, the study reports.

To identify patterns of air pollution exposure associated with race-ethnicity and income, the researchers combined the spatial air pollution patterns predicted in their air quality model with residential population counts from the U.S. Census Bureau to identify differences in exposure by race-ethnicity and income.

The researchers found that for the 2014 U.S. total population average, fine particle air pollution exposures from the majority of source types are higher than average for people of color and lower than average for white people. The data indicate that white people are exposed to lower-than-average concentrations from emissions source types that, when combined, cause 60% of their total exposure, the study reports. Conversely, people of color experience greater-than-average exposures from source types that, when combined, cause 75% of their total exposure. This disparity exists at the country, state and city level and for people within all income levels.

"We find that nearly all emission sectors cause disproportionate exposures for people of color on average," said co-author Julian Marshall, a professor of civil and environmental engineering at the University of Washington. "The inequities we report are a result of systemic racism: Over time, people of color and pollution have been pushed together, not just in a few cases but for nearly all types of emissions."

The researchers found that air pollution disparities arise from a more systemic set of causes than previously understood.

"We were struck by how these systemic disparities exist for people of color not only in certain neighborhoods but at every spatial scale in the U.S.," said co-author Joshua Apte, a professor of civil and environmental engineering at the University of California, Berkeley. "The problem exists within urban and rural areas, many distinct U.S. regions, and for people living within almost all American cities."

"This new study adds context to our previous work, which showed that a disproportionate consumption of goods and services – which is an underlying cause of pollution – compounds the exposure of people of color to air pollution," said co-author Jason Hill, a professor of bioproducts and biosystems engineering at the University of Minnesota.

The study results come with caveats, the researchers said. The emissions data, air quality modeling and population counts all contain previously quantified uncertainty. However, because the team's findings are consistent across states, urban and rural areas, and concentration levels, they are unlikely to be an artifact of model or measurement bias. This study focuses on outdoor air pollution concentrations in places where people reside and does not account for variability in mobility, access to health care and baseline mortality and morbidity rates, among other factors.

"Some assume that when there is a systematic racial-ethnic disparity, such as the one we see here, that the underlying cause is a difference in income," Tessum said. "Because the data shows that the disparity cross-cuts all income levels, our study reinforces previous findings that race, rather than income, is what truly drives air pollution-exposure disparities."

The researchers say they hope these findings will highlight potential opportunities for addressing this persistent environmental inequity.

David Paolella, formerly of the University of Washington, and Sarah E. Chambliss, of the University of Texas, Austin, also contributed to this research. The EPA provided financial support for this study through the Center for Air, Climate, and Energy Solutions.

To reach Christopher Tessum, email ctessum@illinois.edu.